INSPECTION REPORT

According to the requirements of ECE Regulation 110 Uniform provisions concerning the approval of Part 1 Specific components of motor vehicle using compressed natural gases in their propulsion System including all amendments until Supplement 1 to the original version of the Regulation
Date of entry into force : 2003 -10 -16 ;

And

International Standard ISO 15500
Road vehicles – Compressed natural gas (CNG) fuel system components
Part 2 including all Amendments until first edition (2001-2-15)
Performance and general test requirements ;

Part 19 including all amendments until First edition (2001-2-15)
Fittings

Previously drawn up
Test report no. : ---

General information for the Specific Component

1.	Name and address of manufacturer	:	BMT Co., Ltd. 1617-7, Songjeong-Dong, Gangseo-Gu, Busan-si, , Korea 618-270
2.	Make (trade name of manufacturer)	:	Superlok
3.	Type	:	Compression Fittings with front and back ferrules
4.	Article	:	Tube Fittings, Class 0
5.	Test date	:	December 10, 2008 ~ February 26. 2009
6.	Technical service responsible for carrying out the tests	:	TÜV NORD Mobilität GmbH & Co. KG Institut für Fahrzeugtechnik und Mobilität Adlerstrasse 7, D-45307 Essen

List of Appendices

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6.	Pictures of Test Objective(s)	:	Appendix 1 (page 10, 11, 12 & 13)

List of tube fittings to be covered by the testing — Appendix 0

1. Description and Type(Series)

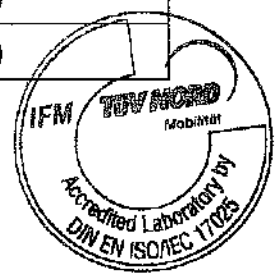
- UNIONS:
  Union(SU), Reducing Union(SRU), Bulkhead Reducing Union(SBHRU),
  Bulkhead Union(SBHU)
- CONNECTORS:
  Male Connector(SMC), Male Connector for Bonded Washer Seal(SGMC),
  Male Connector for Metal Gasket Seal(SOMC), Female Connector(SFC),
  Gauge Connector(SGC), Bulkhead Male Connector(SBMC),
  Bulkhead Female Connector(SBFC)
- ELBOWS:
  Union Elbow(SUE), Male Elbow(SME), 45°Male Elbow(SHME), Female Elbow(SFE)
- TEES:
  Union Tee(SUT), Reducing Union Tee(SRUT), Male Branch Tee(SMBT),
  Male Run Tee(SMRT), Female Branch Tee(SFBT), Female Run Tee(SFRT),
  Union Cross(SUC)
- STUB TUBE CONNECTORS:
  Reducer(SR), Bulkhead Reducer(SBR), Male Adaptor(SMA), Female Adaptor(SFA),
  Port Connector(SPC), Reducing Port Connector(SRPC),
  Flange Lapped Tubes Connector(SFTC).
- AN TUBES:
  An Flare(SAF), An Union(SAU), An Adaptor(SAA)
- O-RING SEAL:
  O-Seal Straight Tread Connector(SOSC), O-Seal Pipe Thread Connector(SOPC),
  SAM/MS Male Connector(SSMC)
- WELD ENDS
  Male Pipe Weld Connector(SPWC), Male Pipe Weld Elbow(SMPWE),
  Socket Weld Elbow(SSWE)
- PLUGS & CAPS:
  Plug(SP), Cap(SC)

2. Connection Size and Working Pressure

INCH SIZE	
Tube O.D(inch) X Wall Thickness(inch)	MAX. Working Pressure
1/16" x 0.020"t	12000psi (827.4bar)
1/8" x 0.035"t	10900psi (751.5bar)
3/16" x 0.049"t	10200psi (703.3bar)
1/4" x 0.065"t	10200psi (703.3bar)

5/16" x 0.065"t	8000psi (551.6bar)
3/8" x 0.065"t	6500psi (448.2bar)
1/2" x 0.083"t	6700psi (461.9bar)
5/8" x 0.095"t	6000psi (413.7bar)
3/4" x 0.109"t	5800psi (399.9bar)
7/8" x 0.109"t	4800psi (330.9bar)
1" x 0.120"t	4700psi (324.1bar)

METRIC SIZE	
Tube O.D(mm) X Wall Thickness(mm)	Max. Working Pressure
3mm x 1.00t	15300psi (1054.9bar)
4mm x 1.25t	14400psi (992.8bar)
6mm x 1.65t	12700psi (875.6bar)
8mm x 1.65t	9300psi (641.2bar)
10mm x 1.65t	7300psi (503.3bar)
12mm x 2.11t	7200psi (496.4bar)
16mm x 2.50t	6800psi (468.8bar)
18mm x 2.77t	6700psi (461.9bar)
20mm x 2.77t	6000psi (413.7bar)
22mm x 2.77t	5400psi (372.3bar)
25mm x 3.00t	5100psi (351.6bar)



0. General information

0.1	Make (trade name of manufacturer)	:	Superlok
0.2	Type	:	Compression Fittings with front and back ferrules
0.3	Article	:	Tube Fittings, Class 0
0.4	Name and address of manufacturer	:	BMT Co., Ltd. 1 1617-7, Songjeong-Dong, Gangseo-Gu, Busan-si, , Korea 618-270
0.5	No. of information folder	:	---

1. Test information

1.1 Test Objective(s)

- Tube Size OD & Wall Thickness : As attached Appendix 0
- Working Temperature : -40℃ to +120℃
- Torque for tube fittings : 7.8 kg m
- Identification of the tube fittings : SU-1, SU-2, SU-4, SU-5, SU-6, SU-8, SU-10, SU-12, SU-16, SU-4M, SU-6M, SU-8M, SU-10M, SU-12M, SU-16M, SU-20M, SU-22M, SU-25M,
  Union : Superlok 316 SCY
  Union Elbow : Superlok 316 SNX
  O' Seal Straight Thread Connector : Superlok 316 SCY
  O' Seal (Material : Viton, Make : Busak, Shamban)
- Pictures of Test Objective(s) : As attached Appendix 1
- Material of the tube fittings : 316 Stainless Steel, For Bar Stock : ASTM A276, A479, ASME SA479, For Forging : ASTMA182, JIS G3214

1.2 Test date : December 10, 2008 ~ February 26. 2009

1.3 Remark : The results of the test refer exclusively to the object(s) mentioned under point 1.1 of this report

2. Test minutes

2.1	Test facilities	: The test equipment used was in compliance with the requirements of the regulation and / or the standard.
2.2	Test Procedures according to	: ISO 15500 part 2 clause 5 and part 19 clause 6.2 and ECE R110
2.3	Test results	
2.3.1	Over Pressure Test (Strength Test) Requirement of Standard : - As per ISO 15500 : A CNG containing component shall withstand without any visible evidence of rupture or permanent distortion a hydraulic pressure of 100Mpa during minimal 3 minutes at room temperature with the outlet of the high-pressure part plugged. Water or any other suitable hydraulic fluid may be used as a test medium. - Requirement as per R 110 : A CNG containing components shall withstand without any visible evidence of rupture or permanent distortion a hydraulic pressure of 1.5~2 times the maximum working pressure during minimal 3 minutes at room temperature with the outlet of the high-pressure part plugged. Water or any other suitable hydraulic fluid may be used as a test medium. The working and Burst test pressures according to the Classification as follows.	Observation : Water used as the medium Test conducted at pressure of 100Mpa as per class 0. No rupture observed. Meets the requirements.

Classification of component	Working Pressure (KPa)	Over Pressure (KPa)
Class 0	3000‹ p‹ 26000	1.5x working pressure
Class 1	450‹ p‹ 3000	1.5x working pressure
Class 2	20‹ p‹ 450	2 x working pressure
Class 3	450‹ p‹ 3000	2 x working pressure

2.3.2	Conclusion	: The samples comply with the requirements The test results cover ECE R.110 requirements as well.

2.4.1	External Leakage Test : Equipment under test will be connected to a source of aerostatic pressure. An automatic valve and a pressure gauge having a pressure range of not less than 1.5 times not more than 2 times the test pressure is to be installed in the pressure supply piping. Test carried out under following conditions	Observation : No leakage observed. Meets the requirements .
	Requirement of Standard : - Room Temperature Test : A CNG containing components shall not leak more than 15㎤ /hour with the outlet plugged when submitted to gas pressure, at room temperature. - Maximum Operating Temperature Test : A CNG containing components shall not leak more than 15㎤ /hour with the outlet plugged when submitted to gas pressure, after conditioning the component for 8 hours at 120℃. - Minimum Operating Temperature Test : A CNG containing components shall not leak more than 15㎤ /hour with the outlet plugged when submitted to gas pressure, after conditioning the component for 8 hours at - 40℃.	

2.4.2	Conclusion	: The samples comply with the requirements The test results cover ECE R.110 requirements as well.

2.5.1	Corrosion Resistance Test : A metal CNG containing components shall comply with the leakage tests, after submitting it to 144 hours salt spray test with all connections closed.	Observation : No corrosion observed. No leakage observed after the corrosion test. Meets the requirements

2.5.2	Conclusion	: The samples comply with the requirements The test results cover ECE R.110 requirements as well.

2.6.1	Excess Torque Test : A components designed to be connected directly to threaded fittings shall be capable of withstanding, without deformation, breakage, a torque effort 150% of the rated installation value.	Observation : The fittings withstood the torque without deformation or breakage. Meets the requirements

2.6.2	Conclusion	: The samples comply with the requirements The test results cover ECE R.110 requirements as well.

2.7.1	Vibration Resistance Test : On completion of the vibration test at the resonant frequency and at 17Hz in each of the three orientation axes the component shall comply with leakage test .	Observation : No damage observed at end of vibration test on the component. Same components when tested for leak test, No leakage observed. . Meets the requirements

2.7.2	Conclusion	: The samples comply with the requirements The test results cover ECE R.110 requirements as well.

2.8.1	Ozone Aging Test (O/Seal only) : The test piece has to be stressed to 20 % elongation shall be exposed to air at 40℃ with an ozone concentration of 50 parts per hundred million for 72 hours.	Observation : After conditioning, no cracking of the test piece is observed. Meets the requirements

2.8.2	Conclusion	: The samples comply with the requirements The test results cover ECE R.110 requirements as well.

2.9.1	Resistance to Dry Heat Test (O/Seal only) : The test is conducted as per ISO 188. The test piece is exposed to air at a temperature equal to the maximum operating temperature is 120 ℃ for 168 hours.	Observation : After conditioning, change in tensile strength is less than 25%. Also ultimate elongation does not exceed maximum increase 10% and maximum decrease 30 %. Meets the requirements

2.9.2	Conclusion	: The samples comply with the requirements The test results cover ECE R.110 requirements as well.

2.10.1	Temperature Cycle Test (O/Seal only) : A non metallic part containing CNG shall comply with the leakage tests, after having been submitted to 96 hours temperature cycle from the minimum operating temperature up to the maximum operating temperature with a cycle time of 120 minutes, under maximum working pressure.	Observation : No leakage observed. Meets the requirements

2.10.2	Conclusion	: The samples comply with the requirements The test results cover ECE R.110 requirements as well.

2.11.1	CNG Compatibility Test (O/Seal only) : A synthetic part in contact with CNG shall show excessive volume change or less of weight. Resistance to n=pentane according to ISO 1817 With the following conditions : 1) medium : n-pentane 2) temperature : 23 ℃ (tolerance acc. to ISO 1817) 3) immersion period : 72 hours	Observation : After conditioning, maximum change in volume observed is less than 20%. Also after storage in air with a temperature of 40 ℃ for a period of 48 hours, decrease in the Mass observed is less than 5% as in comparison with original mass. Meets the requirements

2.11.2	Conclusion	: The samples comply with the requirements The test results cover ECE R.110 requirements as well.

3. Remark concerning tested object(s) : All components as listed in the appendix 0 are covered with the tested object(s)

4. Statement of conformity

The information folder and the type described there comply with the requirements in the above mentioned ~~directive~~/ regulation.

The test laboratory is accredited for the above mentioned tests by the RDW, Vehicle Technology and Information Centre, the Netherlands:

Certification Number: RDW-99050016

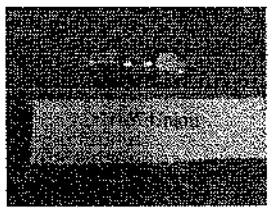
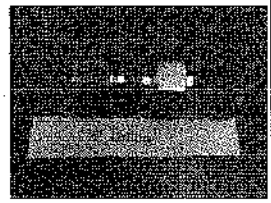
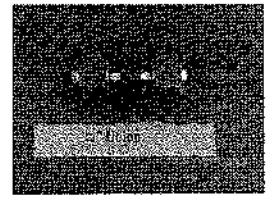
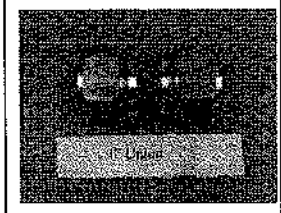
The technical report comprises the pages 1 to 13 (including appendices) and shall not be reproduced except in full without the written approval of the test laboratory.

March 18,. 2009

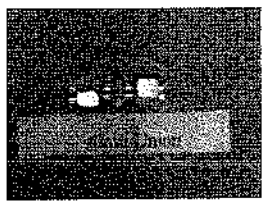
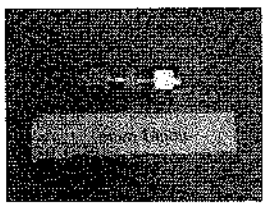
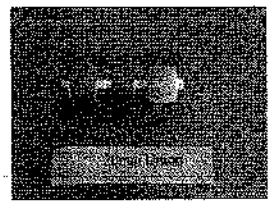
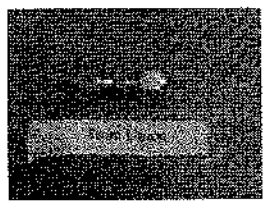
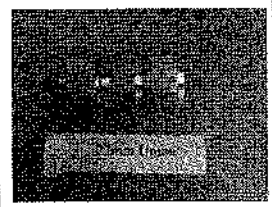
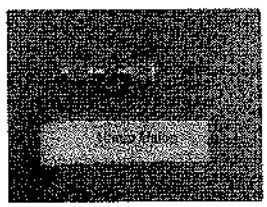
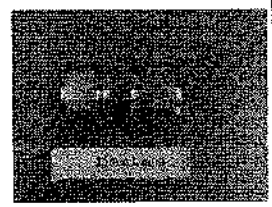
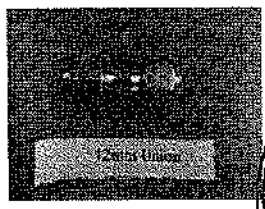
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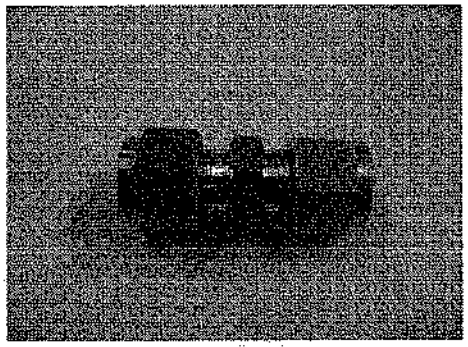
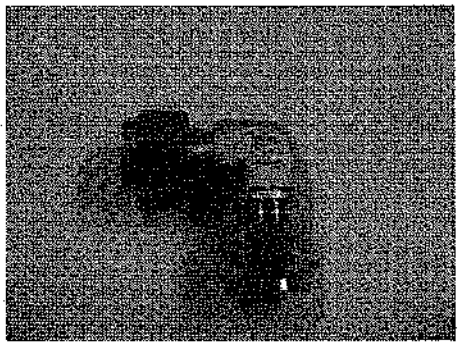
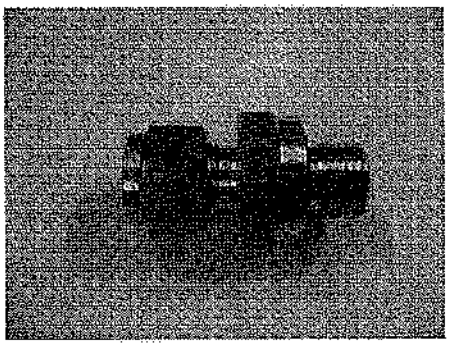
Pictures of Test Objective(s)

Appendix 1

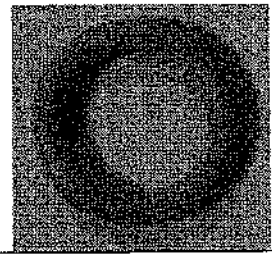
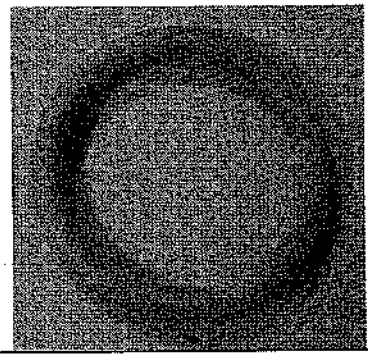
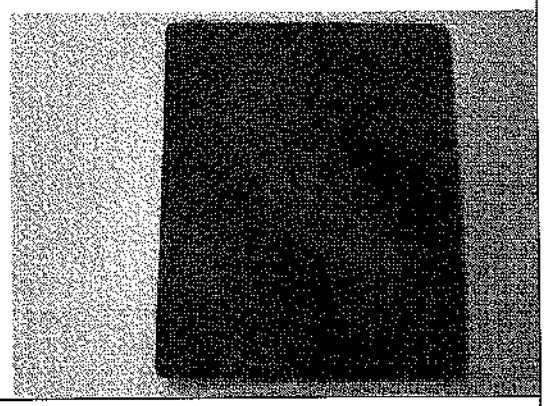
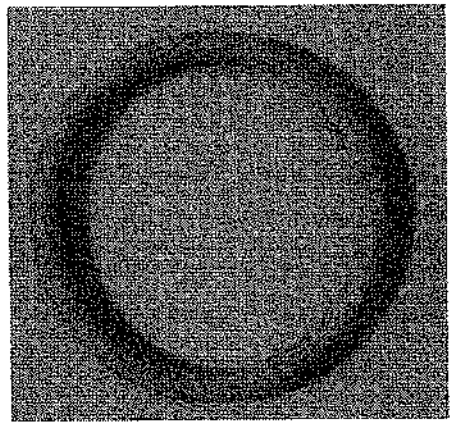
Sr. No.	Part no	Tube O.D(inch) x Wall Thickness (inch)	Components under test	Sr. No.	Part no	Tube O.D(inch) x Wall Thickness (inch)	Components under test
1	SU-1	1/16" x 0.020"t		6	SU-8	1/2" x 0.083"t	
2	SU-2	1/8" x 0.035"t		7	SU-10	5/8" x 0.095"t	
3	SU-4	1/4" x 0.065"t		8	SU-12	3/4" x 0.109"t	
4	SU-5	5/16" x 0.065"t		9	SU-16	1" x 0.120"t	
5	SU-6	3/8" x 0.065"t					

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Sr. No.	Part no	Tube O.D(mm) x Wall Thickness (mm)	Components under test	Sr. No.	Part no	Tube O.D(mm) x Wall Thickness (mm)	Components under test
10	SU-4 M	4mm x 1.25t		15	SU-16M	16mm x 2.50t	
11	SU-6 M	6mm x 1.65t		16	SU-20M	20mm x 2.77t	
12	SU-8 M	8mm x 1.65t		17	SU-22M	22mm x 2.77t	
13	SU-1 0M	10mm x 1.65t		18	SU-25M	25mm x 3.00t	
14	SU-1 2M	12mm x 2.11t					

Sr.No.	Part no	Tube O.D(mm) x Wall Thickness (mm)	Components under test
19	SU 316 3CY	1/2" x 0.083t	 Picture 1. UNION(SU)
20	SUE 316 SNX	1/2" x 0.083t	 Picture 2. UNION ELBOW(SUE)
21	SOSC 316 SCY	1/2" x 0.083t	 PICTURE 4. O-Seal Straight Tread Connector(SOSC)

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Sr.No.	Part no	Tube O.D(mm) x Wall Thickness (mm)	Components under test
22		11.2 mm dia x 1.8 mm thick	
23		23.7 mm dia x 2.63 mm thick	
24		Slab 2.5 mm thick	
25		40mm dia x 3.65 mm thick	

BMT CO., LTD
1617-7, Songjeong-Dong Gangseo-gu Busan S.Korea
Tel: 82-51-831-0167 Fax: 82-51-831-0169
http://www.superlok.com

This is ECE Regulation No. 110 Application for the Compression Tube Fittings(Double Ferrule Type).

ECE Regulation 110, Revision

Type: SUPERLOK COMPRESION TUBE FITTING

MAKE (Trade Name of Manufacture): SUPERLOK

Name and address of manufacturer:
BMT CO., LTD, 1617-7, Songjeong-Dong Gangseo-gu Busan S.Korea

Name and address of manufacturer's representative: Not Applicable
Name:
Address:

Date of Application: Nov. 19. 2008

Signature

K. W. Shim

Kwang-Wook, Shim
QA MANAGER

BMT CO., LTD
1617-7, Songjeong-Dong Gangseo-gu Busan S.Korea
Tel: 82-51-831-0167 Fax: 82-51-831-0169
http://www.superlok.com

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3. FEATURE OF SUPERLOK TUBE FITTINGS

SUPERLOK Tube Fitting is produced by a strict material management, a high precision design and the best processing technology.
SUPERLOK Tube Fitting is tightened softly in linking and is leakage free entirely under shock, impact and high tension. Therefore, it can contribute for productivity
improvement and cost reduction to SUPERLOK Tube Fitting users because It's the best product whose flow of fluid is very smooth caused by Fitting's excellent inner surface condition.
SUPERLOK can be assembled easily without any other special tool but the use of low quality tubing may deteriorate Fitting's function.

The whole system design should be considered so that there is no problem to secure reliable safety.
SUPERLOK is consists of 4 precision parts and all parts are being manufactured through a very strict tolerance superintendence under systematic and constant quality control.
All parts that are being made by this process can cope with the inferior environmental conditions and various customer's needs.

SUPERLOK Tube Fitting secures the leakage prevention and sufficient tightness with less forces in all the tubing connections and reduces the cost and potential leakage risk in a course of tubing assembly and process.

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Accredited Laboratory by DIN EN ISO/IEC 17025

4. DESCRIPTION

- UNIONS:

  Union(SU), Reducing Union(SRU), Bulkhead Reducing Union(SBHRU), Bulkhead Union(SBHU)

- CONNECTORS:

  Male Connector(SMC), Male Connector for Bonded Washer Seal(SGMC), Male Connector for Metal Gasket Seal(SOMC), Female Connector(SFC), Gauge Connector(SGC), Bulkhead Male Connector(SBMC), Bulkhead Female Connector(SBFC)

- ELBOWS:

  Union Elbow(SUE), Male Elbow(SME), 45° Male Elbow(SHME), Female Elbow(SFE)

- TEES:

  Union Tee(SUT), Reducing Union Tee(SRUT), Male Branch Tee(SMBT), Male Run Tee(SMRT), Female Branch Tee(SFBT), Female Run Tee(SFRT), Union Cross(SUC)

- STUB TUBE CONNECTORS:

  Reducer(SR), Bulkhead Reducer(SBR), Male Adaptor(SMA), Female Adaptor(SFA), Port Connector(SPC), Reducing Port Connector(SRPC), Flange Lapped Tubes Connector(SFTC).

- AN TUBES:

  An Flare(SAF), An Union(SAU), An Adaptor(SAA)

- O-RING SEAL:

  O-Seal Straight Tread Connector(SOSC), O-Seal Pipe Thread Connector(SOPC), SAM/MS Male Connector(SSMC)

- WELD ENDS

  Male Pipe Weld Connector(SPWC), Male Pipe Weld Elbow(SMPWE), Socket Weld Elbow(SSWE)

- PLUGS & CAPS:

  Plug(SP), Cap(SC)

IFM TÜV NORD Mobilität Accredited Laboratory by DIN EN ISO/IEC 17025

5. WORKING PRESSURE

INCH SIZE	
Tube O.D(inch) X Wall Thickness(inch)	Working Pressure
1/16" x 0.020"t	12000psi (827.4bar)
1/8" x 0.035"t	10900psi (751.5bar)
3/16" x 0.049"t	10200psi (703.3bar)
1/4" x 0.065"t	10200psi (703.3bar)
5/16" x 0.065"t	8000psi (551.6bar)
3/8" x 0.065"t	6500psi (448.2bar)
1/2" x 0.083"t	6700psi (461.9bar)
5/8" x 0.095"t	6000psi (413.7bar)
3/4" x 0.109"t	5800psi (399.9bar)
7/8" x 0.109"t	4800psi (330.9bar)
1" x 0.120"t	4700psi (324.1bar)

METRIC SIZE	
Tube O.D(mm) X Wall Thickness(mm)	Working Pressure
3mm x 1.00t	15300psi (1054.9bar)
4mm x 1.25t	14400psi (992.8bar)
6mm x 1.65t	12700psi (875.6bar)
8mm x 1.65t	9300psi (641.2bar)
10mm x 1.65t	7300psi (503.3bar)
12mm x 2.11t	7200psi (496.4bar)
16mm x 2.50t	6800psi (468.8bar)
18mm x 2.77t	6700psi (461.9bar)
20mm x 2.77t	6000psi (413.7bar)
22mm x 2.77t	5400psi (372.3bar)
25mm x 3.00t	5100psi (351.6bar)

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6. MATERIALS STANDARDS

Material	Bar Stock	Forgings
316 Stainless Steel	ASTM A276, A479 ASME SA479	ASTM A182 ASME SA182

7. Thread Specifications

Thread Type	Reference Specification
NPT	ASME B1.20.1, SAE AS71051
ISO/BSP(parallel) (Based on DIN3852)	ISO 228, JIS B 0202
ISO/BSP(tapered) (Based on DIN3852)	ISO 7, BS 21 JIS B 0203
ISO/BSP(gauge) (Based on EN837-1and 837-3)	ISO 228
Unified(SAE)	ASME B 1.1

IFW TÜV NORD Mobilität
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BMT CO., LTD
1617-7, Songjeong-Dong Gangseo-gu Busan S.Korea
Tel: 82-51-831-0167 Fax: 82-51-831-0169
http://www.superlok.com

8. Producer Statement of SUPERLOK TUBE FITTING

The samples, which have been presented for evaluation, are made during mass production according to the presented documents.

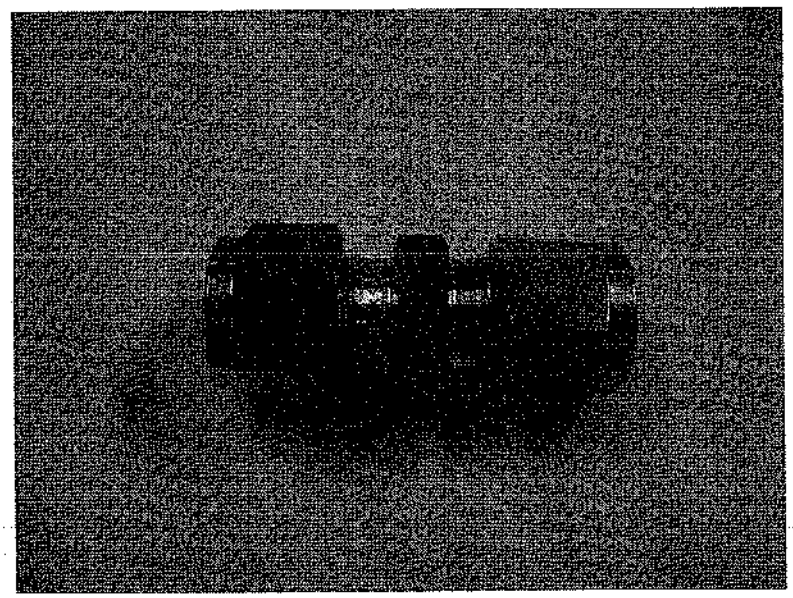
We, as the producer of SUPERLOK TUBE FITTING, carry on our own responsibility - the production process guarantees the parameter stability & unchanging and outlet inspection guarantee. SUPELOK TUBE FITTING will accomplish permanently the requirements which are specified by our instruction.

Signature

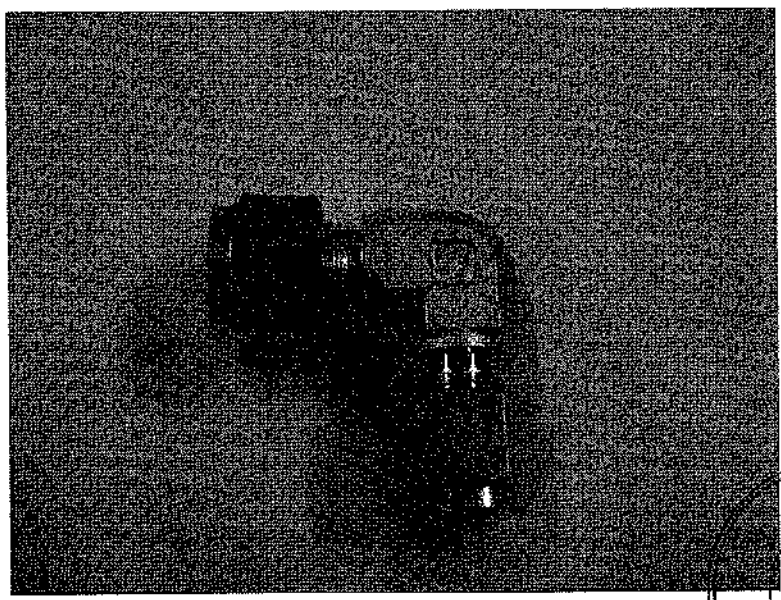
K. W. Shim

Kwang-Wook, Shim
QA MANAGER

8. PICTURE OF SUPERLOK TUBE FITTING

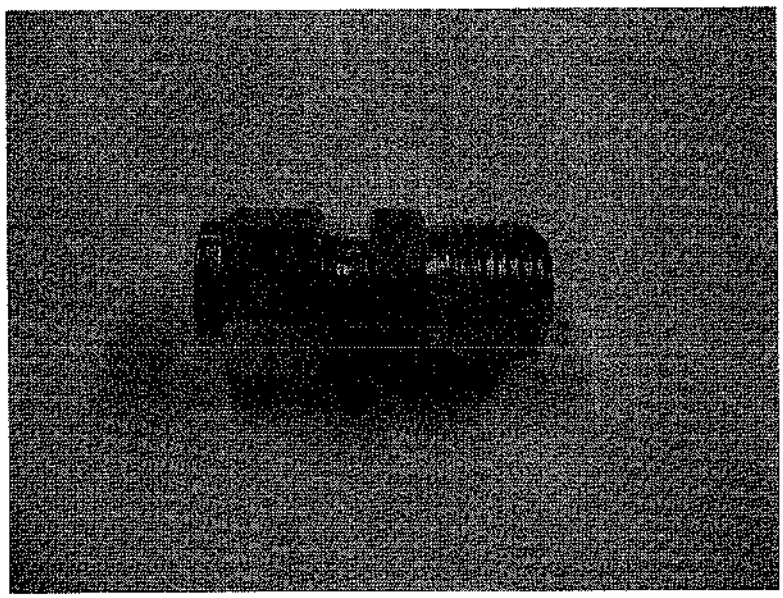


Picture 1. UNION(SU)

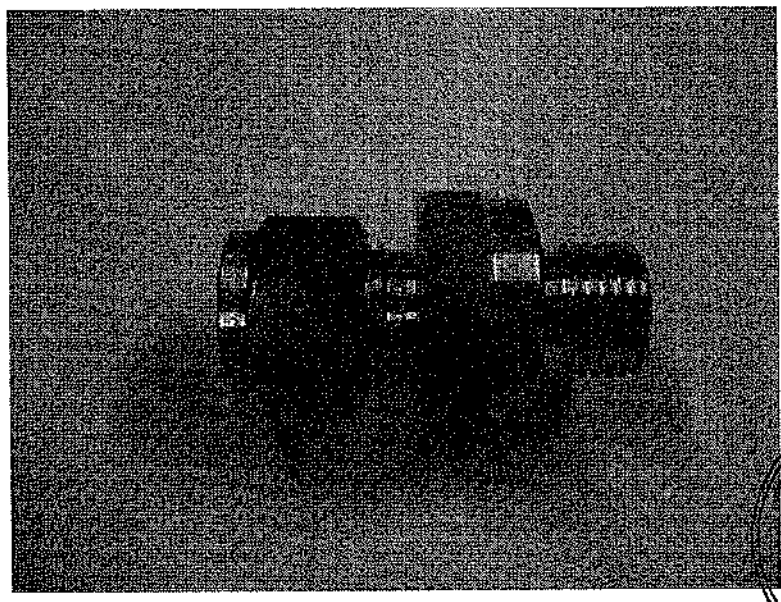


Picture 2. UNION ELBOW(SUE)

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PICTURE 3. MALE CONNECTOR(SMC)



PICTURE 4. O-Seal Straight Tread Connector(SOSC)

FM TÜV NORD Mobilität Accredited Laboratory by DIN EN ISO/IEC 17025

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Tel: 82-51-831-0167 Fax: 82-51-831-0169
http://www.superlok.com

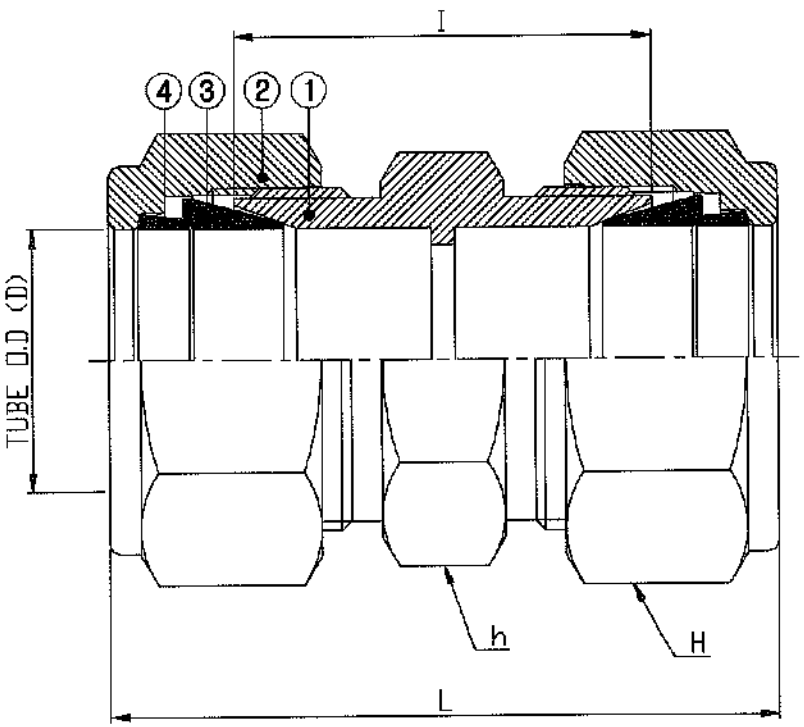
10. DRAWING LIST

TITLE	DWG No.
UNION(SU)	SU-8/Rev. 0
MALE CONNECTOR(SMC)	SMC8-8N/Rev.0
UNION ELBOW(SUE)	SUE-8/Rev.0
O-Seal Straight Tread Connector(SOSC)	SOSC 8-8U/Rev.0

IFM TÜV NORD Mobilmat Accredited Laboratory by DIN EN ISO/IEC 17025

FILE PATH: CADFILE / APPROVAL / FITTING / SU

REV	DATE	REVISION DESCRIPTION	SIGN	APP
0	2008.09.10	FOR APPROVAL	S.H.P	



USAGE CONDITION:

According working pressure (psi)

TUBE O.D (inch)	TUBE WALL THICKNESS (inch)												
	0.010	0.012	0.014	0.016	0.020	0.028	0.035	0.049	0.065	0.083	0.095	0.109	0.120
1/16	5600	6600	8100	9400	12000								
1/8						8500	10900						
3/16						5400	7000	10200					
1/4						4000	5100	7500	10200				
5/16							4000	5800	8000				
3/8							3300	4800	6500				
1/2							2600	3700	5100	6700			
5/8								2900	4000	5200	6000		
3/4								2400	3300	4200	4900	5600	
7/8								2000	2800	3600	4200	4600	
1									2400	3100	3600	4200	4700

Allowable stress value between -20F and 100F (-28.9C~37.8C) is 19,500 psi
Safety factor is 4 (Ultimate tensile strength is 75,000 psi)

- The above data are based on the minimum wall thickness and the maximum O.D allowed by and under the standard ASTM A269.
- The dimensions are not considered to erosion or corrosion.

PART NO.	TUBE O.D D (inch)	h (inch)	H (inch)	I (mm)	L (mm)
SU-8	1/2	13/16	7/8	31.0	51.2

NO.	DESCRIPTION	MATERIAL	Q'TY	REMARK
4	BACK FERRULE	SUS 316	2	-
3	FRONT FERRULE	SUS 316	2	-
2	NUT	SUS 316	2	-
1	BODY	SUS 316	1	-

TITLE	SCALE	DATE
UNION SU Series	N/S	2008.09.10
	DWG.NO	SU-8

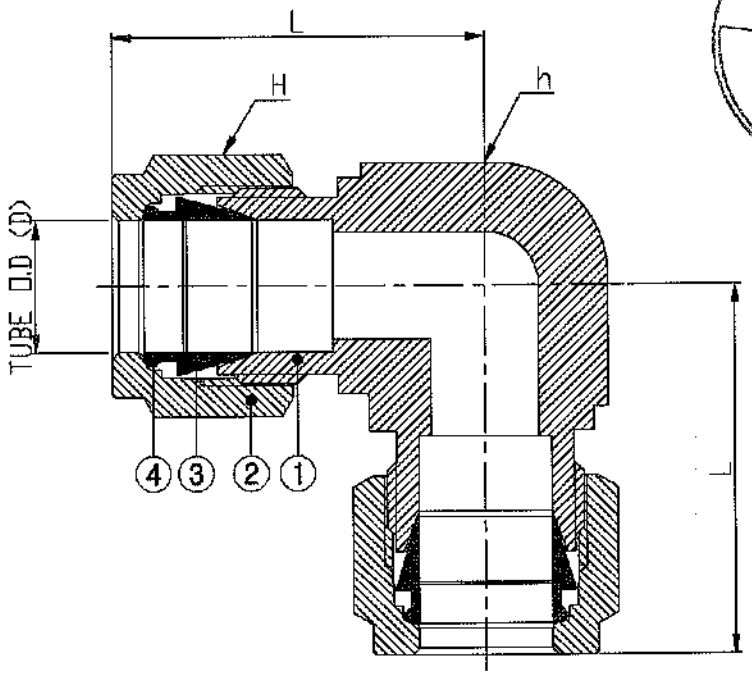
DWG	CHECK	APP
SEO.H.P	LEE.S.M	LIM.J.H

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SHEET NO. 1/1

FILE PATH: CADFILE / APPROVAL / FITTING / SUE

REV	DATE	REVISION DESCRIPTION	SIGN	APP
0	2008.09.10	FOR APPROVAL	S.H.P	



USAGE CONDITION:

TUBING WORKING PRESSURE (psi)

TUBE O.D	TUBE WALL THICKNESS (inch)												
(inch)	0.010	0.012	0.014	0.016	0.020	0.028	0.035	0.049	0.065	0.083	0.095	0.109	0.120
1/16	5800	6800	8100	9400	12000								
1/8						9500	10900						
3/16						5400	7000	10200					
1/4						4000	5100	7500	10200				
5/16							4000	5800	8000				
3/8							3300	4800	6500				
1/2							2800	3700	5100	6700			
5/8								2900	4000	5200	6000		
3/4								2400	3300	4200	4900	5800	
7/8								2000	2800	3600	4200	4800	
1									2400	3100	3600	4200	4700

Allowable stress value between -20F and 100F (-28.9C~37.8C) is 19,500 psi
Safety factor is 4 (Ultimate tensile strength is 75,000 psi)

- The above data are based on the minimum wall thickness and the maximum O.D allowed by and under the standard ASTM A269.
- The dimensions are not considered to erosion or corrosion.

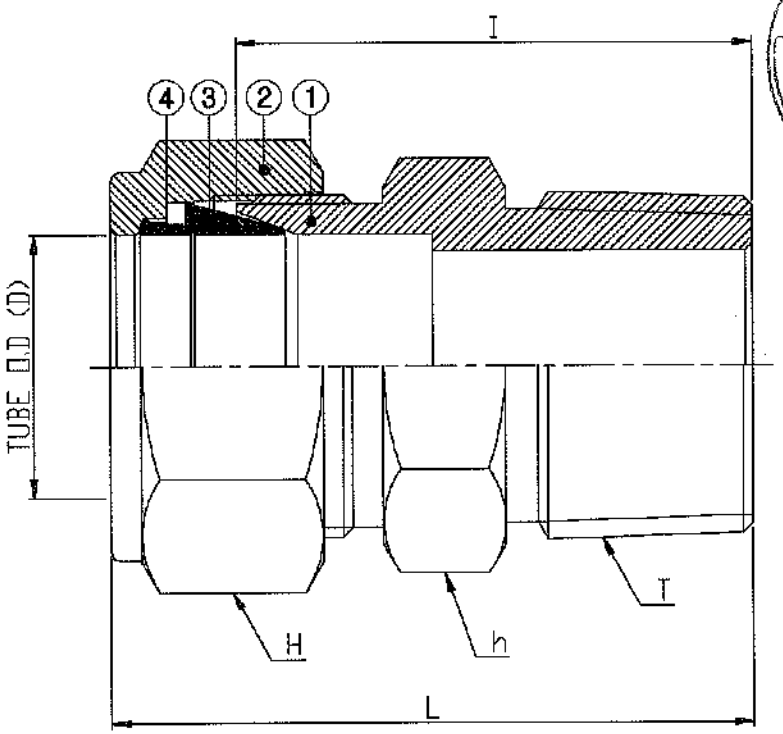
PART NO,	TUBE O.D D (inch)	h (inch)	H (inch)	L (mm)
SUE-8	1/2	13/16	7/8	36.1

NO.	DESCRIPTION	MATERIAL	Q'TY	REMARK
4	BACK FERRULE	SUS 316	2	-
3	FRONT FERRULE	SUS 316	2	-
2	NUT	SUS 316	2	-
1	BODY	SUS 316	1	-

TITLE	SCALE	DATE
UNION ELBOW SUE Series	N/S	2008.09.10
DWG: SEO.H.P / CHECK: LEE.S.M / APP: LIM.J.H	DWG.NO	SUE-8
BMT CO., LTD.	SHEET NO,	1/1

FILE PATH: CADFILE / APPROVAL / FITTING / SMC

REV	DATE	REVISION DESCRIPTION	SIGN	APP
0	2008.09.10	FOR APPROVAL	S.H.P	



USAGE CONDITION:

TUBING WORKING PRESSURE (psi)

TUBE O.D (inch)	TUBE WALL THICKNESS (inch)												
	0.010	0.012	0.014	0.016	0.020	0.028	0.035	0.049	0.065	0.083	0.095	0.109	0.120
1/16	5800	6800	8100	9400	12000								
1/8						6500	10900						
3/16						5400	7000	10200					
1/4						4000	5100	7500	10200				
5/16							4000	5800	8000				
3/8							3300	4800	6500				
1/2							2800	3700	5100	6700			
5/8								2800	4000	5200	6000		
3/4								2400	3300	4200	4900	5800	
7/8								2000	2800	3600	4200	4800	
1									2400	3100	3600	4200	4700

Allowable stress value between -20F and 100F (-28.9C~37.8C) is 19,500 psi
Safety factor is 4 (Ultimate tensile strength is 75,000 psi)

- The above data are based on the minimum wall thickness and the maximum O.D allowed by and under the standard ASTM A269.
- The dimensions are not considered to erosion or corrosion.

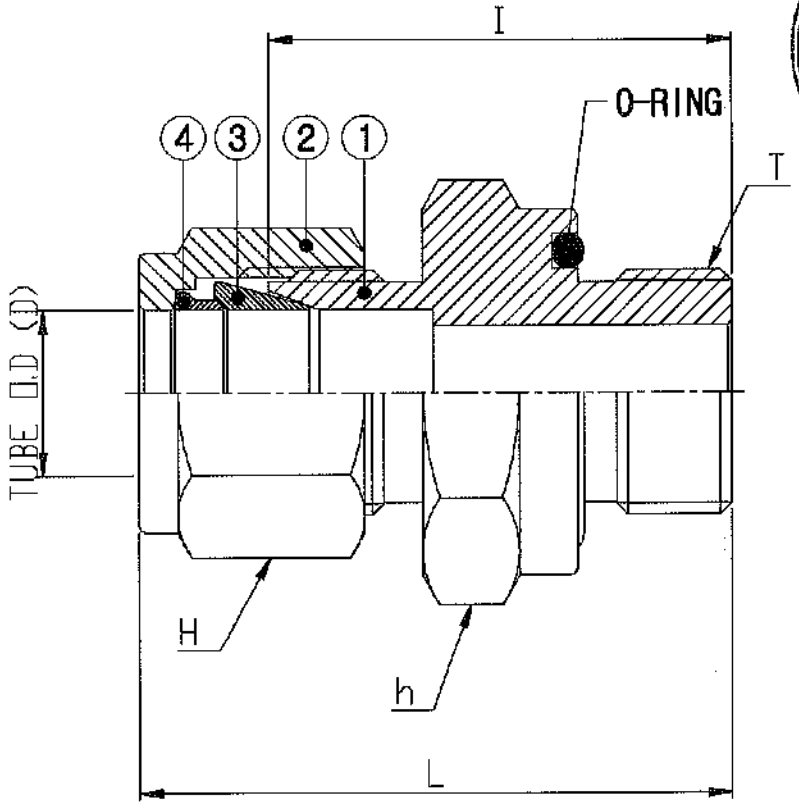
PART NO,	TUBE O.D D (inch)	T (NPT)	h (inch)	H (inch)	I (mm)	L (mm)
SMC8-8N	1/2	1/2	7/8	7/8	38.9	49.0

NO.	DESCRIPTION	MATERIAL	Q'TY	REMARK
4	BACK FERRULE	SUS 316	1	-
3	FRONT FERRULE	SUS 316	1	-
2	NUT	SUS 316	1	-
1	BODY	SUS 316	1	-

TITLE	SCALE	DATE
MALE CONNECTOR SMC-N Series	N/S	2008.09.10
DWG: SEO.H.P / CHECK: LEE.S.M / APP: LIM.J.H	DWG.NO	SMC8-8N
BMT CO., LTD.	SHEET NO,	1/1

FILE PATH: CADFILE / APPROVAL / FITTING / SOSC

REV	DATE	REVISION DESCRIPTION	SIGN	APP
0	2008.11.19	FOR APPROVAL	S.H.P	



USAGE CONDITION:

TUBING WORKING PRESSURE (psi)

TUBE O.D	TUBE WALL THICKNESS (Inch)												
(inch)	0.010	0.012	0.014	0.016	0.020	0.028	0.035	0.049	0.065	0.083	0.095	0.109	0.120
1/16	5800	6800	8100	9400	12000								
1/8						8500	10900						
3/16						5400	7000	10200					
1/4						4000	5100	7500	10200				
5/16							4000	5800	8000				
3/8							3300	4800	6500				
1/2							2600	3700	5100	6700			
5/8								2900	4000	5200	6000		
3/4								2400	3300	4200	4900	5800	
7/8								2000	2800	3600	4200	4800	
1									2400	3100	3600	4200	4700

Allowable stress value between -20F and 100F (-28.9C~37.8C) is 19,500 psi
Safety factor is 4 (Ultimate tensile strength is 75,000 psi)

- The above data are based on the minimum wall thickness and the maximum O.D allowed by and under the standard ASTM A269.
- The dimensions are not considered to erosion or corrosion.

PART NO.	TUBE O.D D (inch)	STRIGHT THREAD T (inch)	h (inch)	H (inch)	l (mm)	L (mm)
SOSC8-8U	1/2"	3/4"-16	1-1/8	7/8	35.8	45.9

NO.	DESCRIPTION	MATERIAL	Q'TY	REMARK
4	BACK FERRULE	SUS 316	1	-
3	FRONT FERRULE	SUS 316	1	-
2	NUT	SUS 316	1	-
1	BODY	SUS 316	1	-

TITLE	SCALE	DATE
O-SEAL STRIGHT THREAD CONNECTOR SOSC Series	N/S	2008.11.19
	DWG.NO	SOSC8-8U

DWG	CHECK	APP
SEO.H.P	LEE.S.M	LIM.J.H

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